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UTILITY PATENT APPLICATION TRANSMITTAL
 (for Noncontinuing, Nonprovisional
 Applications under 37 C.F.R. §1.53(b))

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 JC564 U.S. PTO
 09/618321

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Box PATENT APPLICATION
 Commissioner for Patents
 Washington, D.C. 20231

Sir:

Transmitted herewith for filing
 under 37 C.F.R. §1.53(b) is the
 nonprovisional, noncontinuing
 patent application for:

Title: METHOD AND SYSTEM FOR ANIMATED
 PERSONALIZED ON-LINE PRODUCT PRESENTATION

First Named Inventor or
 Application Identifier:

MARC DAVID ABRAHAMS

)
) CERTIFICATE OF MAILING BY "EXPRESS MAIL"
) "Express Mail" Mailing Label Number
)
) EL307231214US
)
) Date of Deposit July 18, 2000
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) Pamela M. Stone
) (Typed or printed name of person mailing)
) Pamela M. Stone
) (Signature of person mailing)

(X) 17 pages of the specification (including claims) are enclosed.

(X) 1 page Abstract (page 18 of specification).

(X) 1 page Cover Sheet.

(X) 7 sheet(s) of drawings are enclosed. (X) Formal () Informal

(X) An executed Oath or Declaration and Power of Attorney naming the
 actual inventors is enclosed.

() The names of persons believed to be the actual inventors are set forth
 in the enclosed unexecuted Oath or Declaration and Power of Attorney
 (§1.41(a) and §1.53(b)).

(X) An Assignment(s) of the invention to Sony Corporation and Sony
 Electronics, Inc., and cover sheet are enclosed.

(X) A check in the amount of \$40.00 to cover the fee for recording the
 assignment(s) is enclosed.

() A 37 C.F.R. §3.73(b) Statement is enclosed (where an Assignee seeks
 to take action in a matter before the Patent Office).

- () An Information Disclosure Statement is enclosed.
- () A Form PTO-1449 is enclosed.
- () _____ References (copies) listed on the Form PTO-1449 are enclosed.
- (X) A Return Receipt Postcard is enclosed (MPEP §503).
- () A MicroFiche Computer Program (Appendix) is enclosed.
- () A Nucleotide and/or Amino Acid Sequence Submission is enclosed.
- () A Computer Readable Copy is enclosed.
- () A Paper Copy (Identical to Computer Copy) is enclosed.
- () A Statement Verifying Identity of above Copies is enclosed.

(X) The filing fee is calculated below:

Fee Calculation For Claims As Filed

(a) Basic Fee				\$ 690.00
(b) Independent Claims	<u>2</u>	-	<u>3</u> = <u>0</u>	x \$ 78.00 = \$ <u>0</u>
(c) Total Claims	<u>22</u>	-	<u>20</u> = <u>2</u>	x \$ 18.00 = \$ <u>36</u>
(d) Fee for Multiply Dependent Claims				\$260.00 \$ _____
			Total Filing Fee	\$ <u>726.00</u>

- () A Statement(s) of Status as Small Entity is enclosed, reducing the Filing Fee by half to: \$ _____
- (X) A check in the amount of \$ 726.00 to cover the filing fee is enclosed.
- () A separate written request under 37 C.F.R. §1.136(a)(3), which is a general authorization to treat any concurrent or future reply requiring a petition for an extension of time under 37 C.F.R. §1.136(a) for its timely submission as incorporating a petition for an extension of time for the appropriate length of time, is enclosed.
- (X) The Commissioner is hereby authorized to charge any additional fees which may be required in this application under 37 C.F.R. §§1.16-1.17 during its entire pendency, or credit any overpayment, to Deposit Account No. 06-1135. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 06-1135. This sheet is filed in duplicate.


(X) Address all future communications to Customer Number 22242.



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7/18/00

(Date)



Richard E. Wawrzyniak
Registration No. 36,048

Application for United States
Utility Patent entitled:

**METHOD AND SYSTEM FOR ANIMATED AND
PERSONALIZED ON-LINE PRODUCT PRESENTATION**

Inventor:
Marc David Abrahams

CERTIFICATE OF MAILING BY "EXPRESS MAIL"

"Express Mail" Mailing Label Number

EL307231214US

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I hereby certify that this paper is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" Service under 37 CFR §1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231

Pamela M. Stone

(Typed or printed names of person mailing)

Pamela M. Stone

(Signature of person mailing)

**METHOD AND SYSTEM FOR ANIMATED AND
PERSONALIZED ON-LINE PRODUCT PRESENTATION**

5 **BACKGROUND OF THE INVENTION**

1. Field of the Invention

The present invention relates generally to
electronic commerce, and more specifically to
personalized on-line three-dimensional product
10 presentations.

2. Discussion of the Related Art

The ultimate shopping experience is a
personalized shopping experience. Personalized shopping
15 occurs when somebody with knowledge of the shopper's
tastes and preferences selects an assortment of products
and presents them to the shopper to choose from. This
type of personalized treatment has heretofore only been
available to the extremely wealthy who can afford to hire
20 a personal shopper (i.e., a human being) to arrange and
organize such product presentations. Needless to say,
people of ordinary means have long suffered the agony of
having to sift through countless products on store
shelves searching for products in which they are
25 interested.

Meanwhile, the recent increase in the
popularity of the Internet has created a huge on-line
marketplace for goods and services. The present rate of
growth of this so-called electronic commerce ("e-
30 commerce") is astounding. E-commerce has given people
the ability to shop on-line for goods and services in the
comfort of their own homes or offices at any time, day or
night.

Current on-line shopping systems and product
35 presentations, however, suffer from the disadvantage that
they are not personalized. Consumers are forced to

download and sift through numerous web pages with rather long and mundane lists of products. Finding a wanted product can be difficult and time consuming, similar to searching through numerous products on store shelves.

5 And while photographs of products are occasionally included on the web pages, such photographs generally do not give the consumer the ability to examine the product in detail from any selected angle.

Thus, there is a need for a method and/or
10 system for on-line product presentations which overcomes these and other disadvantages.

SUMMARY OF THE INVENTION

The present invention advantageously addresses
15 the needs above as well as other needs through the provision of a method of providing a product presentation to a user. The method includes the steps of: retrieving personalization data for a particular user from a database; assembling display data that is configured to
20 render a three-dimensional display area on a video display, the display area including images of one or more products that are selected based on the personalization data; sending the display data through a computer network for display on a client computer video display; receiving
25 a communication from the client computer through the computer network, the communication resulting from interactions with the display area; and updating the personalization data for the particular user in the database based on the communication.

30 The present invention also provides a system for providing a product presentation to a user. The system includes a database configured to store personalization data for a particular user. A communication device is configured to provide a
35 connection to a computer network. A processing system is configured to retrieve the personalization data from the database, assemble display data that is configured to

render a three-dimensional display area on a video display with the display area including images of one or more products that are selected based on the personalization data, send the display data through the computer network for display on a client computer video display, receive a communication from the client computer through the computer network with the communication resulting from interactions with the display area, and update the personalization data for the particular user in the database based on the communication.

A better understanding of the features and advantages of the present invention will be obtained by reference to the following detailed description of the invention and accompanying drawings which set forth an illustrative embodiment in which the principles of the invention are utilized.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and other aspects featured and advantages of the present invention will be more apparent from the following more particular description thereof presented in conjunction with the following drawings herein;

FIG. 1 is a schematic diagram illustrating a system that incorporates a method in accordance with one embodiment of the present invention;

FIGS. 2A and 2B are flow diagrams illustrating a method of providing on-line product presentations in accordance with one embodiment of the present invention;

FIG. 3 is a screen shot illustrating in greater detail the three-dimensional display area on the screen of the client computer shown in FIG. 1;

FIG. 4 is a screen shot illustrating the results of a search feature in accordance with one embodiment of the present invention;

FIGS. 5, 6 and 7 are screen shots illustrating the on-screen manipulation of a product image in

accordance with one embodiment of the present invention;

FIG. 8 is a screen shot illustrating the downloading of an audio file in accordance with one embodiment of the present invention; and

5 FIG. 9 is a block diagram illustrating an exemplary architecture for the server shown in FIG. 1.

Corresponding reference characters indicate corresponding components throughout several views of the drawing.

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DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

The following description is not to be taken in a limiting sense, but is made for the purpose of describing the general principles of the invention. The scope of the invention should be determined with reference to the claims.

Referring to FIG. 1, there is illustrated a system 100 that incorporates a method of on-line product presentation in accordance with an embodiment of the present invention. The on-line product presentations provided by the system 100 can be personalized, which overcomes the disadvantages of current on-line shopping systems. In other words, the system 100 is capable of learning the user's (i.e., the shopper or the customer) tastes and preferences and can select an assortment of products to present to the user on his or her computer screen. In a preferred embodiment, the present invention provides a virtual personalized animated product selection and customer information gathering tool.

The system 100 includes a computer network 102, which by way of example, may comprise the popular networks known as the Internet and/or the World Wide Web, or the network provided by America Online, Inc. of Dulles, Virginia (AOL Network). A server 104 having a database 106 may be used to host an e-commerce web site in the network 102. The database 106 may be used to maintain a database of personalization data for users

(discussed below).

Users may access the web site hosted by the server 104 by using any of several types of client computers. This way the web site will be displayed on the client computer's display screen. One type of client computer that may be used is the illustrated desktop personal computer (PC) 108. Other types of client computers that may be used in accordance with the present invention include notebook computers and hand-held devices. By way of example, such notebook computers may comprise any of Sony Corporation's popular VAIOTM line of computers, and such hand-held devices may include personal digital assistants (PDA), wireless telephones, and even virtual reality headsets and goggles. In the illustrated embodiment, the desktop PC 108 accesses the network 102 by means of a wired connection 110. It should be well understood, however, that in the present invention a client computer may access the network 102 by means of wireless communications.

The present invention simulates the experience of going into a real "brick and mortar" store. Specifically, a three-dimensional (3D) rendering of the inside of a store appears on the screen 112 of the client computer 108's video display 114. This virtual and animated room (or "display area") may include products on shelves and other images on the walls of the room. Preferably, the displayed products and images are chosen based on the user's personalization data. The user can interact with the virtual room using the computer 108's mouse 116 or other pointing device. This gives the user the ability to select certain products in the room in order to examine them in greater detail. By way of example, the present invention may be implemented by using the graphics and animation capabilities provided by ShockwaveTM technology and an object oriented database.

Referring to FIGS. 2A and 2B, there is illustrated an exemplary product presentation process 200

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The server 104 sends this display data through the network 102 to the client computer 108 in step 214. In step 216 the client computer 108 uses the display data to render a three-dimensional display area on the screen 112 of the video display 114.

FIG. 3 illustrates an exemplary 3D display area that may be produced on the screen 112 of the client computer 108. The display area comprises a virtual CD room that simulates the experience of going into a real music store. The virtual CD room contains images on the walls 302, 304 and a rack 306 with CD jewel cases 308 exposing the edge of the jewel case containing the title of the CD. The CD representations are preferably part of an object database that contains all the information about the CD. A personalization engine (discussed below) uses this object database to recommend which objects will be presented in the personalized room. The object database may be stored in the database 106.

Below the image of the CD rack 306 is an input box 310 for the search tool. In either "My Room" or the genre room, the user can move to the CD rack 306 to select any of the suggested CD's for review and purchase, or choose to search for a CD title, artist, track, etc., using the search input box 310. The user moves around the room using the mouse 116.

When the user first enters "My Room" a first set of CD recommendations will be automatically generated and displayed. The CD recommendations are generated by a personalization engine. If the user does not like any of the CDs in this first set, he or she can click on the "More" button to have a second set of CD recommendations automatically generated and displayed. The user can continue to click the "More" button to view additional CD recommendations. Inclusion of the "More" button is an optional feature of the present invention.

Referring to FIG. 2B, the client computer 108 waits for the user to interact with the display area

displayed on the screen 112 in step 218. When the user interacts with the display area, the client computer 108 sends a communication through the network 102 to the server 104. In step 220 the server 104 receives this
5 communication from the client computer 108. The server 104 processes the data in the communication with a personalization engine in step 222. After the data has been processed, the server 104 updates the personalization data for the user in step 224. The
10 user's personalization data may be stored in the database 106.

Personalization engines and technology are currently available. For example, up-sell and cross-sell recommendations to users can be accomplished through the
15 use of existing personalization tools like those currently available from Net Perceptions, Inc. of Eden Prairie, MN (www.netperceptions.com), Vignette Corporation of Austin, TX (www.vignette.com), and DataSage, Inc. (recently acquired by Vignette
20 Corporation). These companies provide recommendation software, as well as e-marketing and personalization applications that help organizations create a comprehensive single enterprise-wide view of their customers. The products take historical purchase data,
25 click stream data and user provided data and feed it through their engines. The engines use established modifiable rules and a product catalog to make the recommendations of other products that should be of interest to the user. Such personalization engines may
30 be used to implement steps 222, 224.

The use of a personalization engine in the present invention provides for a dynamic virtual reality environment. Namely, as the personalization engine gathers more data on a customer's habits and traits, the
35 engine will be able to better select and recommend specific products to the customer. The displayed products will change as the system becomes more familiar

with the customer. Thus, the displayed items are dynamic based on knowledge of the customer.

By using personalization tools and engines, a company can gather information about its customers' preferences, which helps the company attract and keep customers. Use of the present invention assists a company in gathering of customer product information, either products they own or products they are looking to buy. This information can later be used for marketing or for other up-sell and cross-sell applications.

As mentioned above, the user may click on one of the CD images to view the CD in more detail. If the user does request such a detailed view of one of the CDs, then that request is indicated by the communication sent from the client computer 108 to the server 104. In step 226 the server 104 performs the requested modification, rotation or manipulation of the selected product image. The modified image will be included in modified display data that will eventually be sent to the client computer 108.

If the user's interactions with the display area include the entry of one or more search terms in the search input box 310, then those search terms are included in the communication sent from the client computer 108 to the server 104. In step 228 the server 104 performs a search on those search terms (if any). Similar to the modified images, the results of the search will be included in modified display data that will eventually be sent to the client computer 108.

In addition to purchasing a complete CD to be delivered via mail or other delivery service, users preferably also have the ability to purchase one or more individual songs (titles) for immediate electronic distribution (download). This feature can also be used to download samples of songs. In step 230 the server checks the communication sent from the client computer 108 to the server 104 to see whether or not any song

downloads were requested by the user. If so, the server 104 retrieves electronic versions of the requested song(s) from the database 106 in step 232.

5 In step 234 the server 104 assembles modified display data and prepares to download any requested songs. The modified display data includes any requested manipulated images or search results. The server 104 sends the modified display data through the network 102 to the client computer 108 in step 236. In step 238 the
10 client computer 108 updates the 3D display area based on the modified display data. The server 104 then waits for the user to interact with the display area again.

An example will be used to illustrate some of the features of the above described process.
15 Specifically, if the user enters search terms into the search input box 310, then the modified display data sent to the client computer 108 in step 236 could, for example, render the display depicted in FIG. 4 on the screen 112. In other words, several CDs that were found
20 in a search using the search terms could be displayed. The jewel cases of the CDs could be displayed in a close-up view so that the titles can be easily read.

If the user wants to view one of the displayed CDs in more detail, he or she can click on the jewel case of the CD using the mouse 116 to control a cursor 320.
25 It should be understood that the user can click on the jewel case of a CD at any time to view the CD in more detail. For example, whether the virtual CD rack 306 has been filled by selecting "My Room", selecting a genre
30 room, or performing a search, the user can select a CD to view in more detail by clicking on one of the jewel cases in the CD rack 306. Thus, the virtual room is further dynamic in that the user can interact with the room to view products at different angles, open up the products,
35 zoom in on the products, etc.

After the user clicks on a CD, the modified display data sent to the client computer 108 in step 236

could, for example, render the display depicted in FIG. 5 on the screen 112. Ideally, animation would show the selected CD sliding back out of the rack 306 and turning to display the cover art. The user could then either

5 choose a different CD in the rack 306 or click on the chosen CD (with the cursor 320) to open the jewel case. If the later option is chosen, animation would preferably be used to show the jewel case opening to expose the left and right insides of the case, as illustrated in FIG. 6.

10 The same CD database that includes graphics and animation may also be used to show the details of the customers' chosen title. The customized room is preferably linked to a transaction engine providing the ability for the customer to purchase either the entire CD

15 in hard copy or any individual track by electronic distribution.

Once the CD jewel case is open, one exemplary scenario for allowing the user to purchase the CD, purchase individual songs or view lyrics is as follows.

20 Specifically, cover art and a song list 332 are preferably displayed on the left side 330 of the jewel case. On the right side 334 of the jewel case a CD 336 is preferably displayed with a song list 338 thereon. Another song list 340 is displayed just to the side of

25 the CD 336. An "add to shopping cart" button 342 is preferably displayed below the jewel case. If the user clicks on any of the songs in the song list 332, the song lyrics are displayed, preferably over the cover art as illustrated in FIG. 7. If the user clicks on any of the

30 songs in the song list 338, a sound clip is played. If the user clicks on any of the songs in the song list 340, the electronic distribution of that song is triggered along with an e-commerce instant transaction. The song is downloaded as illustrated in FIG. 8. Finally, if the

35 user clicks on the "add to shopping cart" button 342, the process of delivering a hard copy of the CD to the user begins.

in the database 106, or the hard disk storage 156, or some other storage device.

5 The full disclosures and entire contents of United States Patent Numbers 5,848,399, 5,963,916, and 5,237,157 are hereby expressly incorporated by reference into the present application as if fully set forth herein.

10 While the invention herein disclosed has been described by the specific embodiments and applications thereof, numerous modifications and variations could be made thereto by those skilled in the art without departing from the scope of the invention set forth in the claims.

CLAIMS

What is claimed is:

1. A method of providing a product presentation to a user, comprising the steps of:

retrieving personalization data for a particular user from a database;

assembling display data that is configured to render a three-dimensional display area on a video display, the display area including images of one or more products that are selected based on the personalization data;

sending the display data through a computer network for display on a client computer video display;

receiving a communication from the client computer through the computer network, the communication resulting from interactions with the display area; and

updating the personalization data for the particular user in the database based on the communication.

2. A method in accordance with claim 1, wherein the communication comprises an instruction to select one of the product images in the display area.

3. A method in accordance with claim 1, wherein the communication comprises an instruction to manipulate one of the product images in the display area.

4. A method in accordance with claim 1, further comprising the step of:

assembling modified display data that is configured to render a modified display area having at least a portion of a selected one of the product images shown in more detail.

5. A method in accordance with claim 4, further comprising the step of:

 sending the modified display data through the computer network for display on the client computer video display.

6. A method in accordance with claim 1, wherein the step of updating the personalization data comprises the step of:

 processing data included in the communication with a personalization engine.

7. A method in accordance with claim 1, wherein the communication comprises a request for an audio file.

8. A method in accordance with claim 1, further comprising the step of:

 sending an audio file through the computer network to the client computer.

9. A method in accordance with claim 1, wherein the communication comprises one or more search terms.

10. A method in accordance with claim 1, wherein the display area comprises an input box configured to receive search terms.

11. A method in accordance with claim 1, wherein the display area comprises a virtual room.

12. A system for providing a product presentation to a user, comprising:

 a database configured to store personalization data for a particular user;

 a communication device configured to provide a connection to a computer network; and

 a processing system configured to retrieve the

personalization data from the database, assemble display data that is configured to render a three-dimensional display area on a video display with the display area including images of one or more products that are selected based on the personalization data, send the display data through the computer network for display on a client computer video display, receive a communication from the client computer through the computer network with the communication resulting from interactions with the display area, and update the personalization data for the particular user in the database based on the communication.

13. A system in accordance with claim 12, wherein the communication comprises an instruction to select one of the product images in the display area.

14. A system in accordance with claim 12, wherein the communication comprises an instruction to manipulate one of the product images in the display area.

15. A system in accordance with claim 12, wherein the processing system is further configured to assemble modified display data that is configured to render a modified display area having at least a portion of a selected one of the product images shown in more detail.

16. A system in accordance with claim 15, wherein the processing system is further configured to send the modified display data through the computer network for display on the client computer video display.

17. A system in accordance with claim 12, wherein the processing system is further configured to update the personalization data by processing data included in the communication with a personalization engine.

18. A system in accordance with claim 12, wherein the communication comprises a request for an audio file.

19. A system in accordance with claim 12, wherein the processing system is further configured to send an audio file through the computer network to the client computer.

20. A system in accordance with claim 12, wherein the communication comprises one or more search terms.

21. A system in accordance with claim 12, wherein the display area comprises an input box configured to receive search terms.

22. A system in accordance with claim 12, wherein the display area comprises a virtual room.

ABSTRACT OF THE DISCLOSURE

A virtual personalized animated product selection and customer information gathering method and system includes providing a product presentation to a user by retrieving personalization data for the user from a database, assembling display data that is configured to render a three-dimensional display area on a video display with the display area including images of one or more products that are selected based on the personalization data, sending the display data through a computer network for display on a client computer video display, receiving a communication from the client computer through the computer network with the communication resulting from interactions with the display area, and updating the personalization data for the particular user in the database based on the communication.

2/7

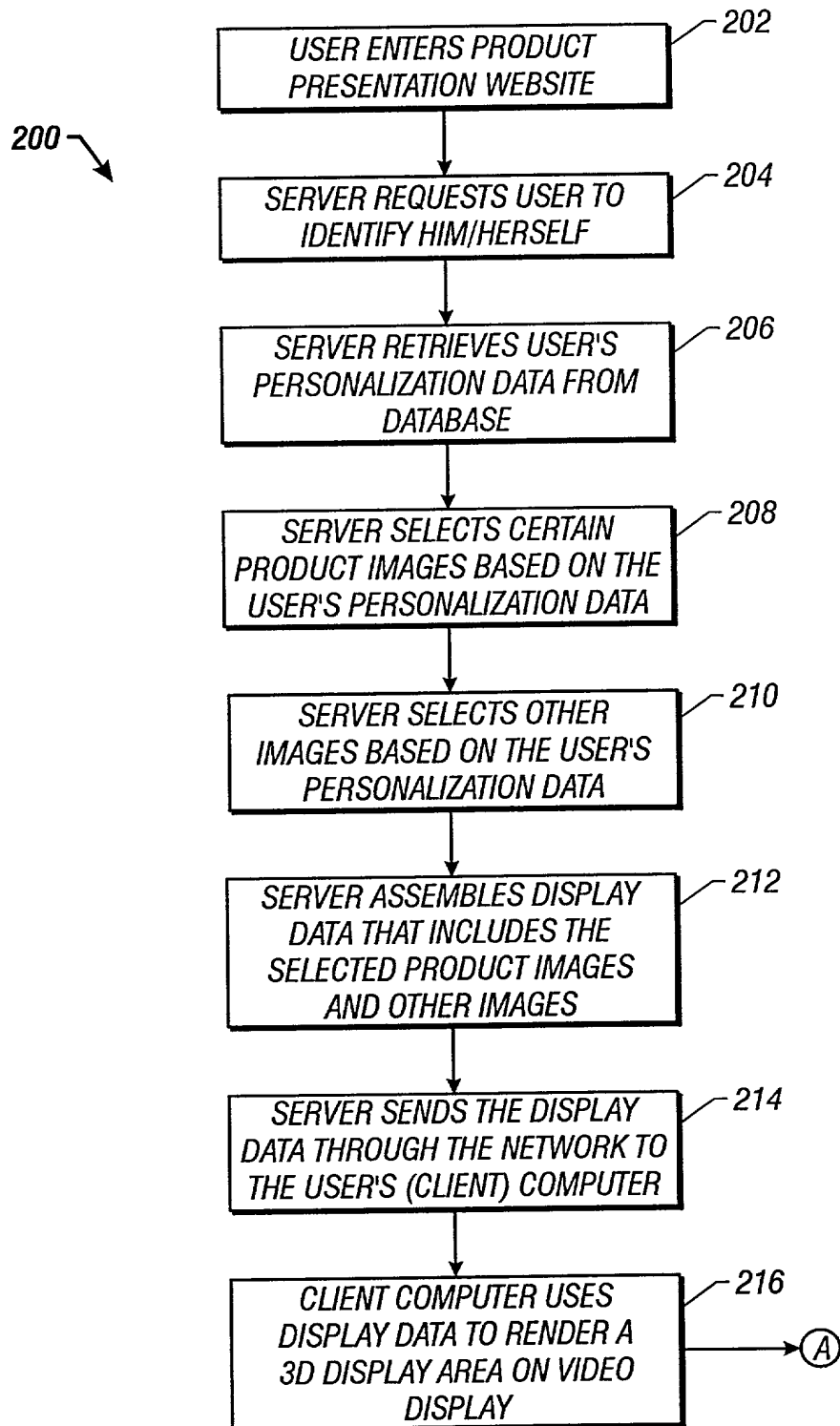


FIG. 2A

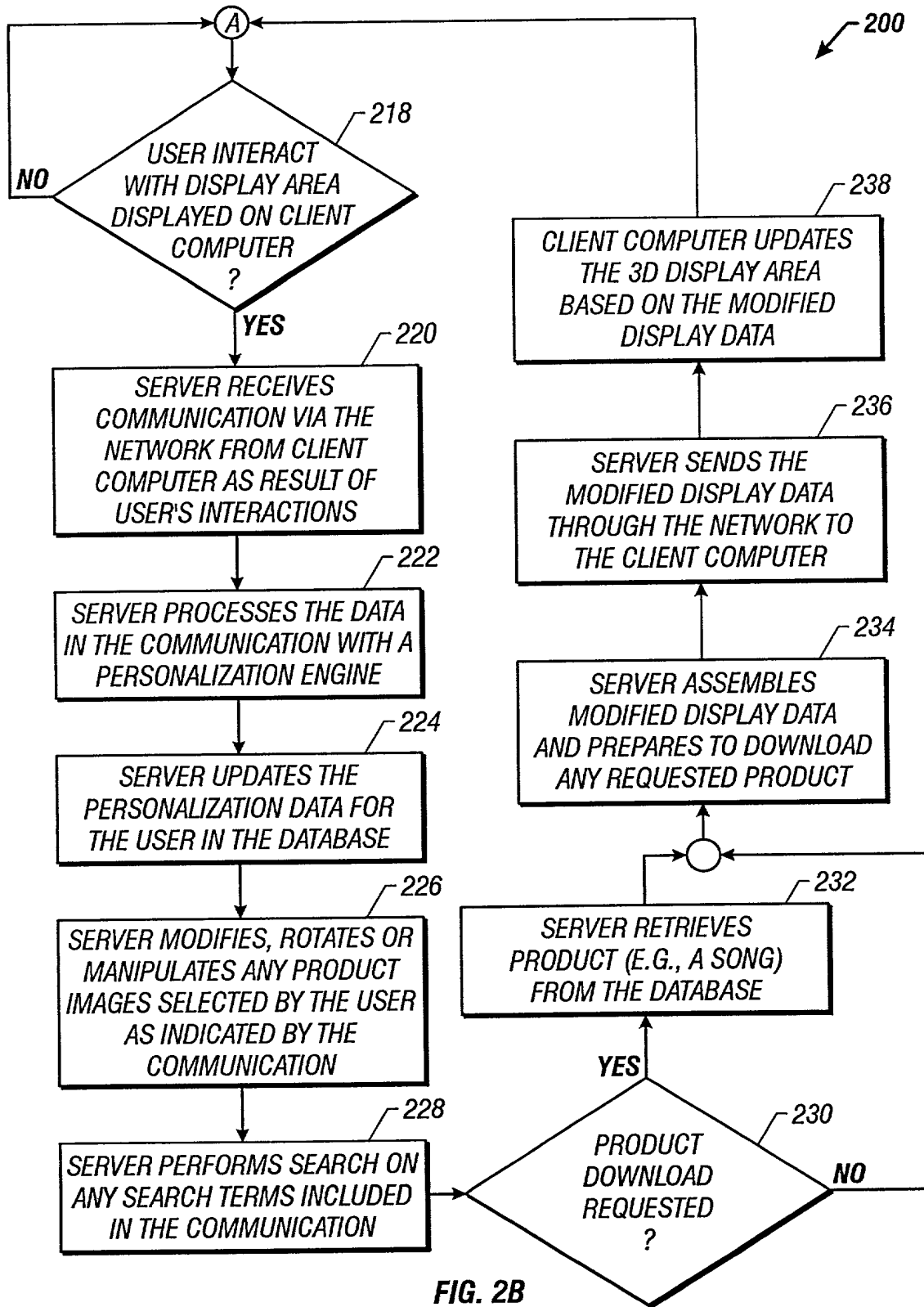


FIG. 2B

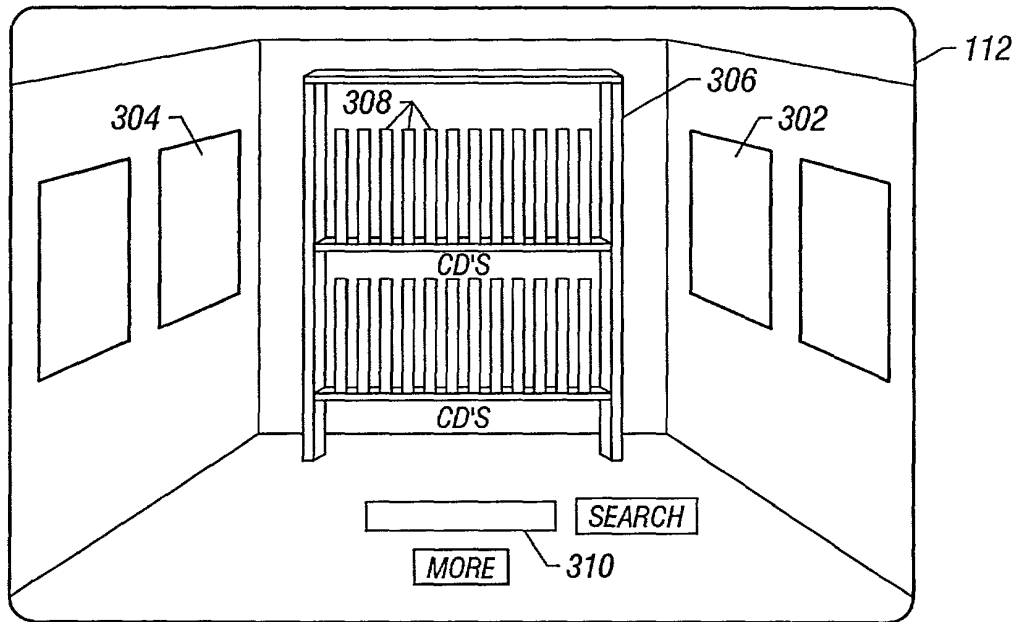


FIG. 3

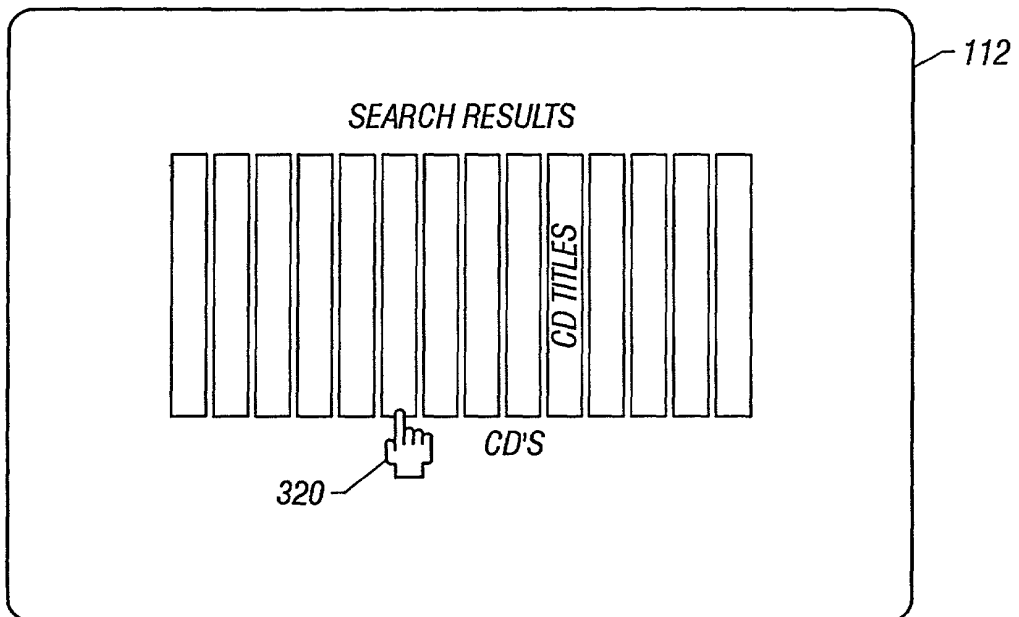


FIG. 4

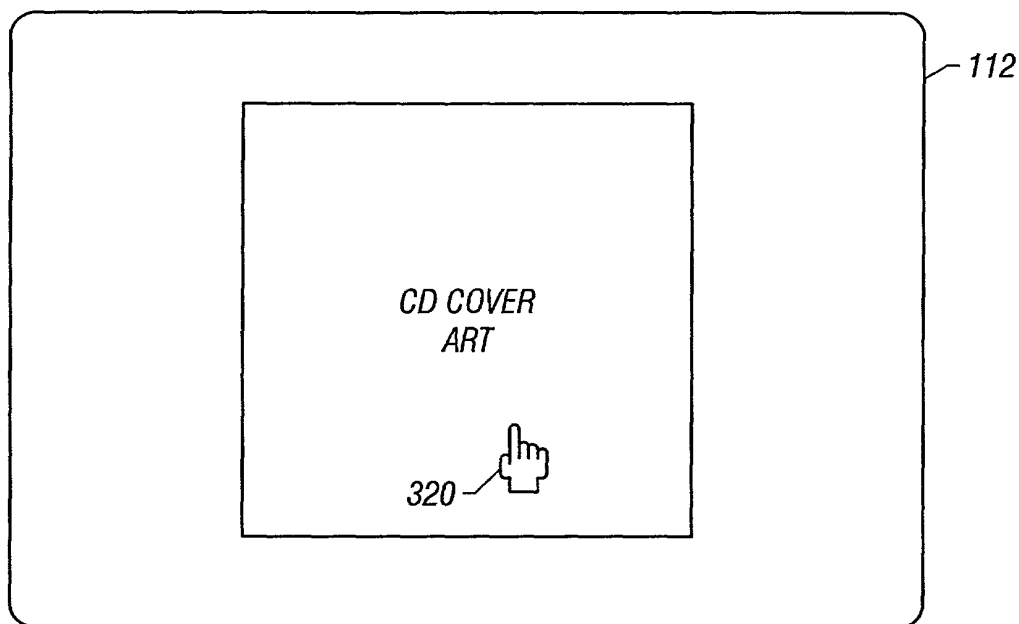


FIG. 5

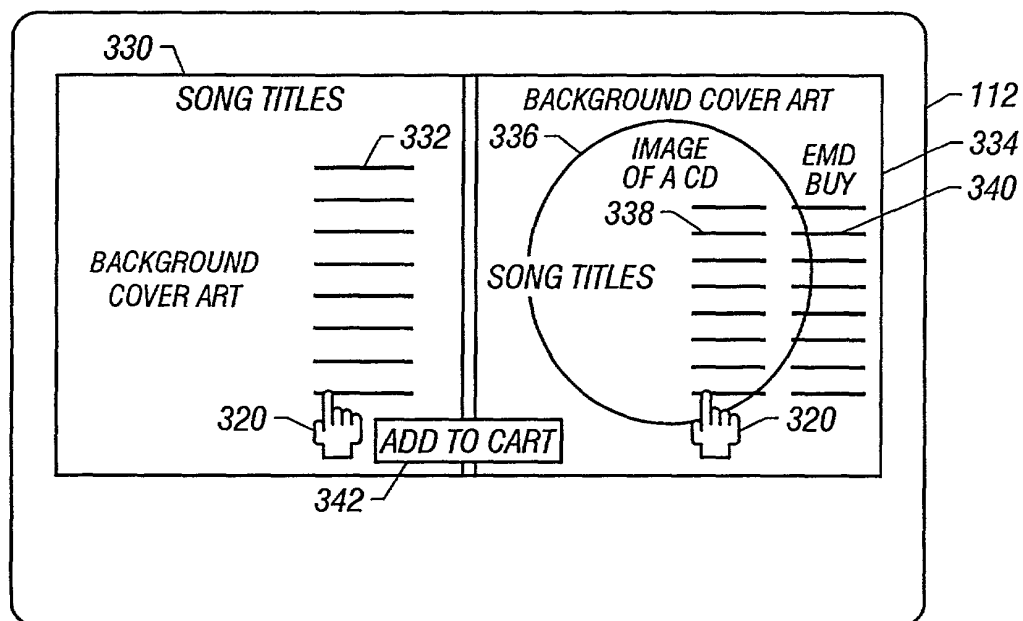


FIG. 6

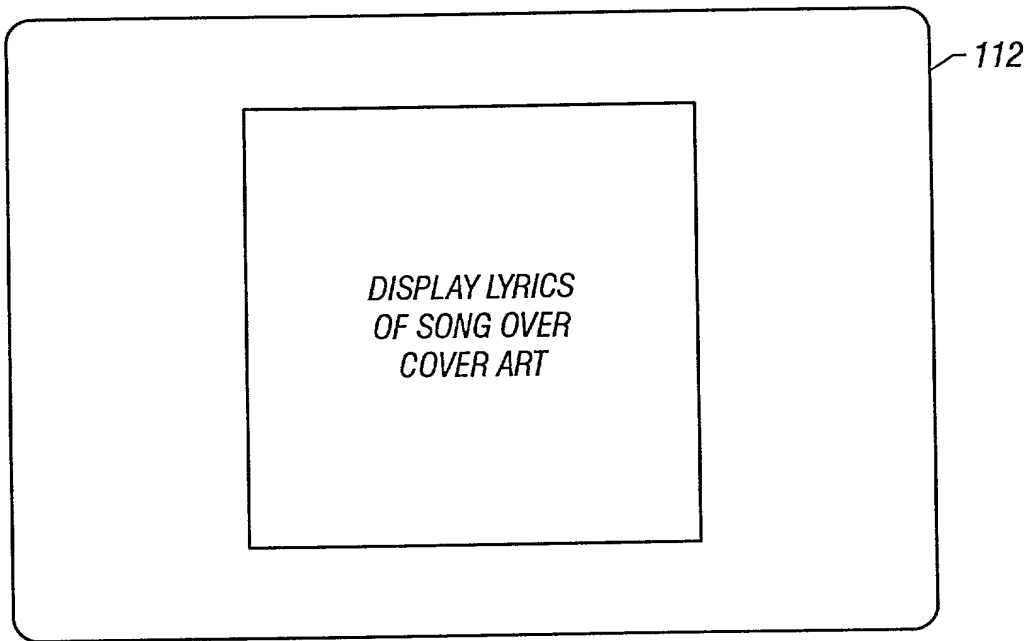


FIG. 7

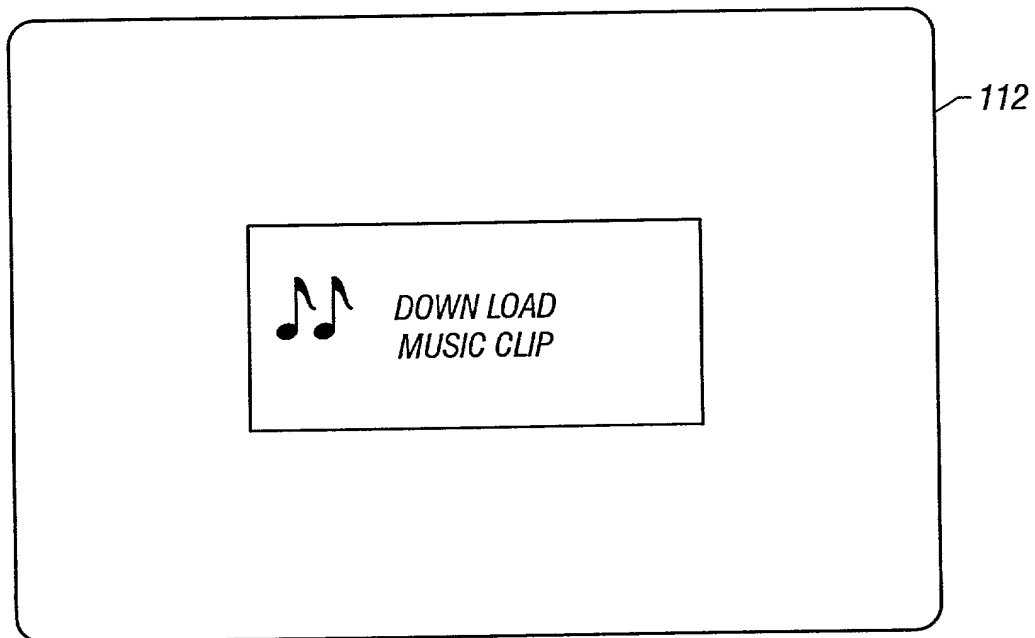


FIG. 8

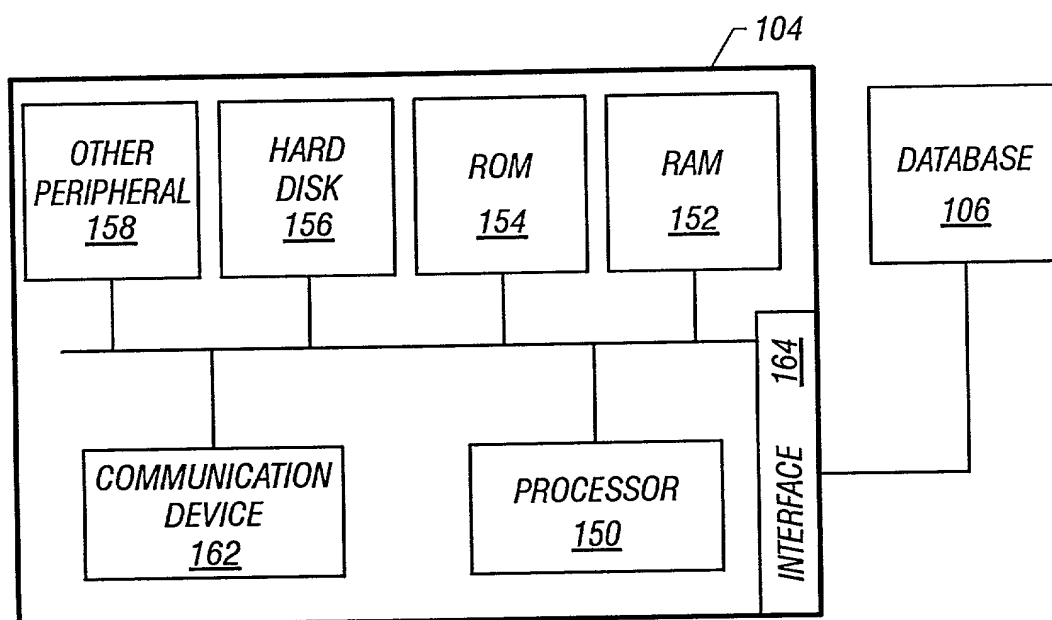


FIG. 9

**DECLARATION
FOR UTILITY OR DESIGN
PATENT APPLICATION**

) Attorney Docket No.: 66182
)
) First Named Inventor:
) Marc David Abrahams
)
) Serial Number:
)
) Filing Date:
)
) Group Art Unit:
)
) Examiner Name:

☒ Declaration Submitted With Initial Filing
☐ Declaration Submitted After Initial Filing

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**METHOD AND SYSTEM FOR ANIMATED AND PERSONALIZED ON-LINE
PRODUCT PRESENTATION**

(Title of Invention)

the specification of which:

(X) is attached hereto, or

() was filed by an authorized person on my behalf on _____ (Date)
as United States Application Number _____
or PCT International Application Number _____,
and was amended on _____ (if applicable).
(Date)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT international application which designated at least one country other than the United States of

box, any foreign application for patent or inventor's certificate, or any PCT international application, on this invention filed by me or my legal representatives or assigns and having a filing date before that of the application on which priority is claimed:

Prior Foreign Application Number(s)	Country	Foreign Filing Date	Priority Not Claimed	Certified Copy Attached	
				Yes	No
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ Additional foreign application numbers are listed on a supplemental priority data sheet attached hereto.

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below:

Provisional Application Number(s)	Provisional Application Filing Date
--------------------------------------	--

☐ Additional provisional application numbers are listed on a supplemental priority data sheet attached hereto.

I hereby claim the benefit under Title 35, United States Code, §120, of any prior United States application(s), or under §365(c) of any PCT international application(s) designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose all information known by me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56, which became available between the filing date of the prior application(s) and the national or PCT international filing date of this application:

Prior U.S. Application Number	Prior PCT International Application Number	Filing Date of U.S. or PCT International Application		Patent Number (if applicable)

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet attached hereto.

As a named inventor, I hereby appoint the practitioners associated with Customer Number 22242, with full power of substitution and revocation, to prosecute this application and to transact all business in the United States Patent and Trademark Office connected therewith, and request that all correspondence and telephone calls in respect to this application be directed to FITCH, EVEN, TABIN & FLANNERY, Suite 1600, 120 South LaSalle Street, Chicago, Illinois 60603-3406, Telephone No. (312) 577-7000, Facsimile No. (312) 577-7007, CUSTOMER NUMBER 22242.



I hereby declare that all statements made herein of my own knowledge are true, and that all statements made herein on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity or enforceability of the application or any patent issued thereon.

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Joint inventor:

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(Given names first, with Family name last)

Inventor's signature:

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